ANNUAL ADMINISTRATIVE REPORT (FY2002) AND WORK PLAN (FY 2003) FOR INVENTORIES AND VITAL SIGNS MONITORING

FY2002-FY2003

MID-ATLANTIC NETWORK

Shenandoah NP (SHEN) (Prototype Park)
Booker T. Washington NHS (BOWA)
Richmond National Battlefield Park (RICH)
Appomattox Court House NHS (APCO)
Petersburg National Battlefield Park (PETE)
Fredericksburg and Spotsylvania NMP (FRSP)
Gettysburg National Military Park (GETT)
Eisenhower National Historic Site (EISE)
Hopewell Furnace NHS (HOFU)
Valley Forge National Historical Park (VAFO)
Appalachian National Scenic Trail (APPA)

Mid-Atlantic Network Approval Signatures

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I. Overview and Objectives

The Mid-Atlantic Network (MIDN) includes eleven parks with significant natural resources. Ten of the parks are located in Virginia and Pennsylvania, the eleventh park, the Appalachian Trail covers 14 states. In October 2001, the Mid-Atlantic Network Inventory Study plan was submitted to WASO and the Network received funds in FY02 to begin implementing inventories on vertebrate and vascular plants in network parks. The focus of the plan was to address inventory gaps in five of the six VA parks in the Network. The four PA parks in this network were fortunate to have received substantial funding for biological inventories prior to the establishment of the I&M networks. Shenandoah National Park, a prototype park, had completed much of their inventory work prior to establishing their monitoring program, and recommended devoting the limited funds to the smaller VA parks. APPA received separate funding for biological inventories that was added to the MIDN. As a prototype, SHEN reports progress under a separate Annual Administrative Report and Work Plan.

In 2001, subject matter experts were invited to attend a scoping workshop involving only the VA parks to help identify gaps in vertebrate and vascular plant inventory information. One of the outcomes of this workshop was the submission of a number of proposals from well known taxonomic experts who attended the workshop in Richmond. Unfortunately, the available funding for biological inventories for the Network parks forwarded from WASO in FY02 could not fully fund all the inventory proposals submitted to the Network. When several Coastal and Barrier Network projects were not ready to fund in FY02, Mid-Atlantic Network projects, ready to go, were funded. The Mid-Atlantic Network will reimburse the Coastal and Barrier Network in FY03.

Projects that are ongoing in the Network include, compiling and entering existing data, legacy data, into the three WASO databases, NPSpecies, NatureBib and the Dataset Catalog. The NPSpecies database for each Network park will be verified and current by summer 2003. Taxonomic experts have been identified to review NPSpecies for some of the parks in the Network and that work will continue in 2003, once each park's database has been completed. The cooperative agreement with Penn State University (PSU) to update Naturebib for the four Northeast Region Networks, including the Mid-Atlantic Network has been extended. The research associate from PSU hired to correct and update NatureBib has been visiting each park to search for new documents and update existing information.

Product specifications have also been written and included in each new cooperative agreement for biological inventories. These specify formats for deliverables, such as, FGDC compliant metadata for all spatial data sets, FGDC Biological Profile for all biological data sets, and relational databases in MS Access. The Coastal and Barrier Network data manager, assisted with, as well as developed relational databases for cooperators working on biological inventories to assure quality products at the completion of each project. Assistance will also be provided to cooperators in developing metadata for all new projects.

Deliverables from the inventory projects funded by regional science in FY00 and FY01 in the four PA Network parks, GETT, EISE, HOFU and VAFO, are now being submitted. These projects were funded prior to the development of I&M product specifications. The Coastal and Barrier Network data manager and several data management cooperators, are currently working with each of these inventory cooperators to make sure that products are being delivered to the parks and the regional office, following I&M specifications. Relational databases are being developed to house much of this data, data dictionaries and FGDC compliant metadata are being developed with the cooperators to ensure proper documentation of all products.

Vegetation mapping is underway in all of the network parks except APPA. VAFO is nearly complete and has served as an example for us to develop a review process for vegetation mapping products. Park resource

managers in this network have been a tremendous asset to the inventory and monitoring program. Our cooperators have prepared excellent study plans to meet the identified data gaps. This network initiated more inventory projects in 2002 than were identified for funding in the original inventory study plan, consequently, incoming inventory dollars in 2003 and 2004 will be used to repay other networks.

The Mid-Atlantic Network is not scheduled to receive start-up funding to begin developing a monitoring program until FY04. Permanent staff, a Network Coordinator and Data Manager, will not be hired until that time, however, a term data manager may be hired to oversee incoming data and deliverables from recently funded inventories, as well as manage the three WASO databases for the Network.

Objectives for Biological Inventories

(1) Compile and evaluate existing data and enter this information into NPSpecies, Naturebib and the Dataset Catalog.
(2) Document 90% of vertebrate and vascular plant species in the parks through targeted field investigations.
(3) Conduct data management tasks.
(4) Complete vegetation mapping for the Network parks.
(5) Contribute to general management planning in Network parks.

Objectives for Vital Signs Monitoring

The Mid-Atlantic Network is not scheduled for start up funding for monitoring until FY04: however, there has been some discussion about forward funding all of the networks in 2003 if the budget is not reduced. If funding is provided, the network will receive $150,000 in start up funds to hire staff and begin to develop a vital signs monitoring program.

II. Accomplishments (FY2002) and Scheduled Activities (FY2003)

A. Biological Inventories

Objective 1 – Compile and evaluate existing data and enter this information into NPSpecies, Naturebib and the Dataset Catalog.

Task 1.1 – NPSpecies (all parks)

- FY 2002 Accomplishments: (1) Through an existing cooperative agreement with Penn State University (PSU) a part-time research associate began to convert and verify existing data in the Network's NPSpecies database in the spring of 2002 (this position is shared between two Networks, the Mid-Atlantic and Eastern Rivers and Mountains). Existing records in NPSpecies were to be verified and corrected in association with the original hard copy documents. This included verifying each species with its associated reference, identifying species in the database not referenced and removing them, addition or removal of documented common or scientific names, and adding locational information, abundance and nativity information. Spelling errors were also to be corrected as well, and any new data gathered in 2001/2002 entered. Unfortunately, due to problems with staff, the verification process is not complete for the Mid-Atlantic Network parks. New staff is currently being hired to complete this project. (2) Through a cooperative agreement with the University of Rhode Island a part-time research assistant was hired to complete data mining for existing information on vertebrates and vascular plants found along the Appalachian Trail.
- Activities and Products Scheduled FY 2003: (1) Complete the verification process for NPSpecies. Assist parks in reviewing their park database. Hire taxonomic specialists to review NPSpecies for the Network. (1) Assist in the development of regional NPSpecies guidelines for cooperators and park staff to ensure data entry standardization. (2) Provide NPSpecies training to park staff. (3) Gather data collected in

2002 from Network parks and enter it into NPSpecies and other appropriate NPS databases. (4) Complete the data mining effort for the Appalachian Trail, write report and seek cooperator to develop a database to manage TREADS data with species data.

Task 1.2 NatureBib (all parks)

- FY 2002 Accomplishments: (1) Through an existing cooperative agreement with PSU, a full-time research associate is entering and verifying existing references in the NPS bibliographic database, NatureBib. This is a shared position between the four Northeast Region Networks. In order to locate new records for inclusion into each park database, update work includes visits to the parks, as well as searches and/or visits to local, state, and federal public, private, educational, and governmental libraries and repositories. Online databases and resources are also searched for relevant natural resource information via the Internet or locally. Also included in this updating is the editing of the existing records for duplication, authority control, and data enhancement due to multiple source, non-NatureBib originated cataloging. Site visits were made to HOFU and the Appalachian Trail in 2002.
- Activities and Products Scheduled FY 2003: (1) Complete the update and verification of Naturebib, including park visits to PETE, RICH, BOWA, FRSP, VAFO, EISE, GETT, SHEN, and APCO.

Objective 2 – Complete the documentation of 90% of vertebrate and vascular plant species in the parks through targeted field investigations.

Task 2.1 – Mammal Surveys (FRSP, RICH, BOWA, PETE, APCO)

- FY 2002 Accomplishments: (1) A cooperative agreement was established with the CESU at Frostburg State University, Dr. Ron Barry to conduct a two-year study to determine the presence, relative abundance, and distribution of small, medium, and large mammal species at RICH and FRSP. (2) A cooperative agreement was established with Virginia Commonwealth University, Dr. John Pagels to conduct a two-year study to determine the presence, relative abundance, and distribution of small, medium, and large mammal species at APCO, BOWA and PETE. Site visits have been conducted to each of the parks, and historical records of mammals have begun to be compiled for these three parks.
- Activities and Products Scheduled FY 2003: (1) Historical records of mammals at FRSP and RICH will be obtained, strata within each park outlined, ground-truthed and sampling sites identified. The first year of a two year surveys at RICH will begin in March 2003 and for FRSP in August 2003. (2) Surveys of mammals at APCO, BOWA and PETE will begin in March 2003, sampling protocols will be refined if necessary, and procedures for data analyses will be established.

Task 2.2 – Avian Surveys (FRSP, RICH, BOWA, PETE, APCO)

- FY 2002 Accomplishments: (1) A cooperative agreement was established with the Center for Conservation Biology at the College of William and Mary, Dr. Dana Bradshaw, to search for and catalog all verifiable records of birds occurring within park boundaries, develop an expected species list for each park and conduct targeted avian inventories to fill information gaps at APCO, BOWA, PETE, RICH and FRSP.
- Activities and Products Scheduled FY 2003: (1) Review digital imagery and begin site set-ups for avian inventories. (2) Produce survey plan and meet with individual park contacts. (3) Hire field and data techs. Jan – March 2003 Conduct winter bird surveys. Establish and populate database. Advertise for volunteers for spring work. April – July 2003. (4) Conduct spring migration and breeding season surveys. Manage database. (5) August 2003 Establish and GPS strip transects. Begin fall migration surveys. (6) Conduct wading bird colonies and bald eagle nests surveys at FRSP, PETE, and RICH by fixed wing aircraft during the breeding season. This will be carried out as part of a larger Coastal Plain-wide effort that the Center will be involved with. There will be two surveys for bald eagles, during which wading bird colonies may be located and mapped as well. (7) Conduct nocturnal surveys on two nights in the spring and early summer for owls and nightjars.

Task 2.3 – Herpetological Surveys (FRSP, RICH, BOWA, PETE, APCO)

- FY 2002 Accomplishments: (1) A proposal was submitted by Joseph Mitchell, Ph.D. of the University of Richmond to survey herps in the five Mid-Atlantic Network VA parks. Dr. Mitchell visited each park, evaluated habitat types and wetland acreage from existing maps and conducted a hiking survey in each park prior to submitting a full proposal to complete these inventories. A cooperative agreement was established with the University of Richmond to conduct herpetological surveys in these five parks. (2) Surveys began in September 2002 at PETE, RICH and FRSP.
- Activities and Products Scheduled FY 2003: (1) Continue to conduct herpetological surveys at PETE, RICH and FRSP. (2) Begin surveys at APCO and BOWA.

Task 2.4 – Fish surveys (FRSP, RICH, BOWA, PETE, APCO, HOFU)

- FY 2002 Accomplishments: (1) Jim Atkinson, the fisheries biologist, from SHEN, organized time, equipment, expertise and temporary staff to conduct freshwater fish inventories in the five VA Mid-Atlantic parks. A combined total of 21 sites were sampled with backpack electrofishing gear including, streams and beaver ponds. A combined total of 59 fish species were recorded ranging from a low of 8 at PETE to a high of 31 at FRSP. Data entry for all park programs was completed by mid September. (2) A cooperative agreement with Penn State University was amended to complete a fisheries inventory at HOFU as part of a Level I water quality inventory. An expected species list was developed for the park, and field work began in 2002.
- Activities and Products Scheduled FY 2003: (1) Two VA parks will be revisited by the SHEN crew in 2003 to sample large ponds. (2) Compile fish data in NPSpecies for Virginia parks. (3) Complete the fisheries inventory at HOFU, write report and enter data into NPSpecies. (4) We still have not received complete data from the fish voucher search (Cooperative Agreement with Penn State University, Dr. Jay Stauffer, FY99). Stauffer is searching collections for fish specimens from PA and VA. Species lists and distributions maps for each park were suppose to be created and data entered into NPSpecies. This project was to be completed in 2001.

Task 2.5 – Vertebrate surveys - APPA

- FY 2002 Accomplishments: Data mining for vertebrate data revealed some data gaps for the AT.
- Activities and Products Scheduled FY 2003: Data mining effort will continue when NatureBib work is complete. Inventory funds for the AT will be used to fill data gaps for rare vertebrate species.

Objective 3 – Conduct data management tasks

Task 3.1 Relational database development for VA park inventories (PETE, APCO, BOWA, RICH, FRSP)

- FY 2002 Accomplishments: (1) A mammal inventory database was developed by Frostburg State University staff with assistance from the Coastal and Barrier Network data manager, for mammal inventories to be conducted at RICH and FRSP as well as for three Coastal and Barrier Network parks.
- Activities and Products Scheduled FY 2003: (1) Develop a relational database in MS Access for mammal inventories to be conducted at PETE, BOWA and APCO, by Virginia Commonwealth University. (2) Develop a relational database in MS Access for herpetological inventories to be conducted at PETE, BOWA, APCO, RICH and FRSP by the University of Richmond. (3) Assist cooperators at the College of William and Mary in developing a relational database in MS Access for avian inventories to be conducted at BOWA, PETE, FRSP, RICH, and APCO, as well as three Coastal and Barrier Network parks.

Task 3.2 Relational database development for PA park inventories (GETT, EISE, VAFO, HOFU)

- FY 2002 Accomplishments: (1) A student was hired at North Carolina State University (NCSU) to develop relational databases in MS Access, assist cooperators in developing FGDC compliant metadata for their projects, and convert incoming inventory data from projects funded prior to I&M product specifications. Both herp and avian inventory data collected by Dr. Richard Yahner from Penn State University was converted to the new database. The Coastal and Barrier Network data manager advised

and assisted the student at NCSU with database development, requirements and review.

- Activities and Products Scheduled FY 2003: (1) Continue to convert existing inventory data to relational access databases and assist cooperators in developing FGDC compliant metadata following the biological profile. (2) Provide these Access databases to parks, and assist park staff in developing data entry forms for further use for park inventories.

Task 3.3 Revise the existing regional I&M program product specifications (All parks)

- FY2002 Accomplishments: (1) Northeast Regional I&M Program product specifications were written in FY01, and incorporated in all cooperative agreements funded through the I&M program in the region.
- Scheduled FY 2003 Activities and Products: (1) The regional product specifications were initially written to ensure that all deliverables for incoming biological inventory data follow the standard I&M formats as well as provide a checklist to ensure their completeness by including FGDC metadata, Access databases, spatial data, and reports. These specifications need to be expanded to include more detailed specifications for long-term monitoring projects.

Task 3.4 Data mining and data management for the Appalachian Trail (APPA)

- FY2002 Accomplishments: (1) A GIS technician was cost shared between APPA and I&M to develop a GIS of existing data collected by State Natural Heritage Programs (14 states) on T&E species of vascular plants found along the Appalachian Trail. The park has hired the technician permanently. (2) A research assistant was hired part-time at the University of RI to conduct data mining on vertebrate species found along the Appalachian Trail.
- Scheduled FY 2003 Activities and Products: (1) Further identify biological inventory needs for APPA. Develop cooperative agreements to complete identified projects. (2) Complete data mining project for APPA and write report. (3) Assess the need for development of a relational database in MS Access to house all park data. If necessary, establish a cooperative agreement to develop a database and convert the park's existing biological data. (4) Enter APPA biological data into NPSpecies, once the database has the capability of housing data by state.

Task 3.5 Assist cooperators with developing FGDC compliant metadata for biological inventories (All parks)

- FY2002 Accomplishments: (1) Discussions among cooperators, data managers, and I&M staff in the Northeast have identified the need to provide support to cooperators in developing FGDC compliant metadata for their projects. Currently in the Mid-Atlantic Network there are eight cooperators at different Universities conducting biological inventories in the Network parks. The region itself has many more.
- Scheduled FY 2003 Activities and Products: (1) An amendment to the existing cooperative agreement with NCSU FTSC, will be established to train undergraduates at NCSU to develop FGDC compliant metadata following the biological profile. These students will then directly assist Northeast Region I&M cooperators with the development of FGDC compliant metadata for all projects.

Task 3.6 Peer review process for biological inventory work (All parks)

- FY2002 Accomplishments: (1) A cooperative agreement was amended with Penn State University, Dr. Richard Yahner to provide funding for scientific peer review of incoming vertebrate inventory data and reports for the Mid-Atlantic Network and some projects being conducted in Eastern Rivers and Mountains Network parks.
- Scheduled FY 2003 Activities and Products: (1) Continue peer review as data and reports are submitted to the Networks.

Task 3.7 Archive data sets and reports(All parks)

- FY2002 Accomplishments: (1) An informal data management meeting was held at the University of RI in Jan 2002. Attendees including regional I&M staff, regional GIS staff, regional senior scientists, the

Regional Information Management Chief, CACO and SHEN prototype staff, and staff from both FTSC's (URI and NCSU). The purpose of this meeting was to identify and begin addressing the data management needs of the regional I&M Program.

- Scheduled FY 2003 Activities and Products: (1) Develop archival procedures for incoming biological data, including vegetation mapping field forms, plots data and reports. (2) Identify data storage sites. (3) Develop a process for peer review of data.

Objective 4 – Complete vegetation mapping for Network parks

Task 4.1 – Complete vegetation maps for FRSP, RICH, BOWA, PETE, APCO

- FY2002 Accomplishments: (1) Additional funding was added to an existing contract with Kucera, Inc. to take aerial photos of FRSP, PETE, BOWA, RICH and APCO. These were completed in the spring of 2002. (2) An amendment to an existing cooperative agreement with North Carolina State University (NCSU), Hugh Devine, was established to develop vegetation maps for FRSP, PETE, BOWA, RICH and APCO. NCSU will be handling the GIS/mapping portion of the project and will work with VA Natural Heritage Program staff who will be conducting the field work. VA Natural Heritage will work with NatureServe to crosswalk the classifications for these parks to the National Vegetation Classification (NVC). (3) A second phase of this project includes developing protocols for mapping fire fuel loads using the 1:6,000 scale leaf-off aerial photography used for creating vegetation maps. Preliminary tasks include collecting fuel load data at parks using Brown's transects and other appropriate field protocols. This fieldwork is being carried out concurrently with the fieldwork required to assess positional accuracy of the orthophoto mosaics and thematic accuracy of the vegetation maps. (4) Spring 2002, the Virginia Division of Natural Heritage (VADNH) began the first of three field seasons of work on a project to classify and map the vegetation of seven park units in Virginia. Two parks in the Coastal and Barrier Network (COLO and GEWA) were included in this agreement, as well as five Mid-Atlantic Network parks (APCO, BOWA, FRSP, PETE, and RICH). As of August 2002, VADNH Ecologists have begun work in six of the seven parks, sampling vegetation communities and evaluating the photo interpretation completed to date. During these field visits, VADNH Ecologists have documented several new examples of interesting natural communities and several potential county distributional records for plant species. Approximately 50% of the fieldwork for APCO was completed. All fieldwork was completed for BOWA. Approximately 40% of the fieldwork was completed at FRSP. Approximately 5% of the fieldwork was completed at PETE. Approximately 10% of the fieldwork was completed at RICH. (5) The VAFO vegetation map was completed in 2002 and Regional I&M staff provided assistance in developing a review process for the completed product.
- Scheduled FY 2003 Activities and Products: (1) The Virginia Division of Natural Heritage will complete the second year of a three year field season to classify and map the vegetation of seven park units in Virginia, including APCO, BOWA, FRSP, PETE, and RICH. (2) Fieldwork to assess positional accuracy of the ortho-photo mosaics and thematic accuracy of the vegetation map and to collect fire fuel load will be completed by NCSU. (3) NatureServe will crosswalk the classifications developed by the VA Natural Heritage Program to the National Vegetation Classification.

Task 4.2 – Complete vegetation map for HOFU

- FY2002 Accomplishments: (1) An existing contract with Kucera Inc., was amended to complete aerial photography for HOFU. Richard Easterbrook from PETE, served as contracting officer technical representative and reviewed the photos to ensure they met necessary specifications. (2) The FTSC at North Carolina State University (NCSU), provided ArcView shapefiles with assistance from parks, of areas to be flown. (3) NCSU developed orthophoto mosaics of each park. (3) A cooperative agreement was established with the PA Natural Diversity Inventory (PANDI), to complete a vegetation map for HOFU, including both the field and technical work. PANDI utilized the digital imagery to locate, identify, and map the plant communities at HOFU. They gathered and analyzed plant community data to develop a community classification for the park, created a map of the plant communities present,

provided attribute data (including plant species, cover, soil types, etc.), and assessed the accuracy using Accuracy Assessment Protocols.

- Scheduled FY 2003 Activities and Products: (1) Complete final vegetation map for HOFU. (2) Amend the cooperative agreement with NatureServe to crosswalk the PANDI vegetation classification to the national classification

Task 4.3 – Complete vegetation map for GETT and EISE

- FY 2002 Accomplishments: (1) An amendment to the Cooperative Agreement with PA Natural Diversity Inventory (PANDI) was partially funded to complete vegetation maps for GETT and EISE. PANDI will review orthophotography (to be provided), complete field data collection, data analysis, mapping, development of the key and classification, all reporting on spatial and non-spatial data and accuracy assessment.
- Activities and Products Scheduled FY 2003: (1) North Carolina State University is developing contract specification for air photos and assembling shape files and boundaries (in cooperation with park comments) for parks to be flown in Spring 2003, leaf off, CIR. (2) A contract for air photos will go out for bid and Richard Easterbrook will act as contracting officer's technical representative for this set of photos. (3) NCSU will create digital orthophoto mosaics from air photos. (4) An amendment to the NatureServe master agreement will be developed to crosswalk the PA parks classification to the National Vegetation Classification (NVC).

Task 4.4 Determine Vegetation Mapping needs for APPA

- Scheduled FY 2003 Activities and Products: (1) A proposal has been requested from NatureServe to evaluate the feasibility of producing a vegetation map for APPA. NatureServe has also been asked to evaluate existing rare plant community data and descriptions and determine the ability to crosswalk to the National Vegetation Classification.

Task 4.5 Assist in the development of standards for vegetation map review and assessment (All parks)

- Scheduled FY 2003 Activities and Products: (1) Various components of the veg mapping process has been funded for 34 of 38 parks in the Northeast Region. The VAFO vegetation map is ready for final review and others will soon follow. Development of a standard review protocol is needed. An initial meeting was held in Luray, VA during the veg mapping training session to discuss gaps in veg mapping guidelines, to identify parties responsible for review of spatial data, ecological data and the classification and keys.

Task 4.6 - Provide training in vegetation mapping (All parks)

- Scheduled FY 2003 Activities and Products: (1) Funding to organize a training session for Northeast Region and National Capital Region was provided through the Northeast Temperate network by the vegetation mapping program. NatureServe was hired to develop the course materials, hire staff to attend and teach. The training was held in October in Shenandoah National Park. Two days were classroom session and one day of field work. Various side meetings every evening completed the educational opportunity for many attendees as we reviewed completed vegetation mapping products for FIIS and VAFO. Sixty people attended. Presentations will be posted to the Coastal and Barrier Network website in the future.

Objective 5 – Contribute to general management planning in Network parks. *(SHEN)*

- FY2002 Accomplishments: (1) A proposal developed by senior scientists in the Northeast Region was submitted and funded by the WASO planning office. The purpose of this proposal is to synthesize and interpret existing natural resource information and studies to better inform park planning at SHEN. SHEN is scheduled to begin its GMP in 2004/5.
- Scheduled FY 2003 Activities and Products: (1) Northeast Region I&M staff will continue to assist

regional scientists, CESU staff, park staff and planners to meet the following goals of the proposal mentioned above: identify and review existing natural resource studies and data sets for SHEN; analyze, consolidate and synthesize this information in a manner that portrays the historical and existing park ecosystem(s) and identifies the natural resource characteristics and conditions in the context of each park's purpose and mission; identify issues and opportunities that should be addressed during the GMP process; identify critical gaps in the knowledge base which must be addressed prior to initiating the planning process; identify and map (GIS) usable natural resource data to better inform the GMP process; present the results of this work to park planners and managers in a way that is understandable and useable in the park planning and management process(s); and identify a cadre of knowledgeable natural resource professionals that would continue in an advisory role during each park's planning process.

III. Staffing

John Karish, Chief Scientist PHSO
Elizabeth Johnson, Northeast Region I&M Coordinator
La Donna Francis Sifford, Research Associate, PSU
Scott Tiffney, Research Associate, PSU
Sara Stevens, Coastal and Barrier Network Data Manager

Mid-Atlantic Network Biological Inventory Cooperators

Frostburg State University-Dr. Ron Barry
Virginia Commonwealth University-Dr. John Pagels
College of William and Mary, Center for Conservation Biology-Dr. Dana Bradshaw
University of Richmond-Dr. Joe Mitchell
West Chester University, Dr. Harry Tiebout III
SHEN fish crew
Richard Easterbrook, PETE (air photos and vegetation mapping)
North Carolina State University-Field Technical Suppport Center, Dr. Hugh Devine
NatureServe, Lesley Sneddon
VA Department of Natural Resources (Heritage program), Chris Ludwig and Karen Patterson
PA Natural Diversity Inventory (Natural Heritage Program), Greg Podneisinski and Tony Davis
Penn State University, Dr. Richard Yahner, Brad Ross
University of Rhode Island

IV. Public Interest Highlights

Fisheries Staff from SHEN volunteer to complete inventory in VA Network Parks.

For the first time since the fisheries monitoring program was implemented at SHEN in 1982, the accumulated expertise of park staff was applied to completing fisheries inventories in five other Virginia parks including Fredericksburg/Spotsylvania, Richmond and Petersburg Battlefields, Appomattox Court House and Booker T. Washington National Monument. A combined total of 21 sites were sampled ranging from small streams with gravel/cobble substrates to large systems with deep cut channels and muck substrates.

A total of 59 fish species were identified from among thousands of individual fish captured at all of the sites combined during 2002. Species diversity within individual parks ranged from 8 at Petersburg to 31 at Fredericksburg. At Richmond, 24 species were identified. Appomattox and Booker T. Washington each contained 28 species. Species diversity appeared to be most influenced by the number streams present within each park, stream size and/or diversity of habitat types within/between streams.

Species diversity ranged from those that are commonly encountered in Shenandoah streams including blacknose dace (Rhinichthys atratulus), bluehead chub (Nocomis leptocephalus), common shiner (Luxilus cornutus) and tessellated darter (Etheostoma olmstedi) to those that Shenandoah crews have never encountered and are not likely to encounter including sea lamprey (Petromyzon marinus), eastern mudminnow (Umbra pygmaea), pirate perch (Aphredoderus sayanus), bluespotted sunfish (Enneacanthus gloriosus), black jumprock (Scartomyzon cervinus), and quillback (Carpiodes cyprinus). One particular highlight was the reconfirmation of the presence of ironcolor shiners (Notropis chalybaeus) in Beaverdam Creek at Richmond. The original record there was from 1976 and represents the only known record of this species from the entire James River Drainage. Other scattered populations of ironcolors exist elsewhere in the coastal plain of Virginia.

Assistance with species identifications involving species that were unfamiliar to park staff was provided by area fisheries biologists with the Virginia Department of Game and Inland Fisheries and ultimately by Dr. Robert Jenkins at Roanoke College. Dr. Jenkins is principal author of the comprehensive Freshwater Fishes of Virginia published in 1993.

During vegetation mapping effort, VA Natural Heritage Program identifies rare and threatened habitats at PETE, RICH, BOWA and APCO.

This Spring, the Virginia Division of Natural Heritage (VADNH) began the first of three field seasons of work on a project to classify and map the vegetation of seven park units in Virginia (COLO, APCO, BOWA, FRSP, GEWA, PETE, RICH). As of August 2002, VADNH Ecologists had begun work in six of the seven parks, sampling vegetation communities and evaluating the photo interpretation completed to date. During these field visits, VADNH Ecologists have documented several new examples of interesting natural communities and several potential county distributional records for plant species. Two exemplary natural communities, with a ranking of G3, were found at PETE and RICH. This global ranking indicates that these two communities are either very rare throughout its range, or found locally abundant within a restricted range or vulnerable to elimination throughout its range due to specific factors. Other finds include county distributional records for plant species that include species not previously recorded as occurring in a particular county according the Atlas of Virginia Flora. Vouchers of potential county records are being sent to the herbarium at Virginia Tech University in Blacksburg, Virginia for confirmation and deposition.

The preliminary results from 2002 field season include:

An exemplary occurrence of Montane Basic Seepage Swamp natural community was documented in APCO and could be a new community association for the U.S. National Vegetation Classification. This is the first recorded occurrence of a Basic Seepage Swamp in the Virginia Piedmont and may result in modification of the state description. Potential county distributional records from APCO for plant species in Appomattox County include: *Carex trichocarpa* (Hairy-fruit sedge, G4S3S4), *Carya ovalis* (Red Hickory, G5S5), *Carya ovata* (Shagbark Hickory G5S5), *Cephalanthus occidentalis* (Common Buttonbush, G5S5), *Chelone glabra* (White Turtlehead, G5S5).

A new occurrence of Basic Mesic Forest natural community was documented in BOWA and could be a new community association for the U.S. National Vegetation Classification. Potential county distributional records from BOWA for plant species in Franklin County include: *Arisaema dracontium* (Green Dragon, G5S5), *Carex normalis* (a sedge, G5S5),*Carya cordiformis* (Bitternut Hickory), *Carya ovalis* (Red Hickory, G5S5), *Euonymus atropurpureus* (Wahoo, G5S4), *Hydrastis canadensis* (Goldenseal, G4S3), *Hydrophyllum canadense* (Broad-leaved waterleaf), *Scleria oligantha* (Little-headed nutrush, G5S4), *Smilax herbacea* (Common Carrionflower, G5S5?)

An exemplary occurrence of Coastal Plain / Piedmont Acidic Seepage Swamp natural community was documented in RICH. This community is classified as Acer rubrum - Nyssa sylvatica - Magnolia virginiana Forest (Southern Red Maple - Black Gum Swamp Forest - CEGL006238) in the U.S. National Vegetation Classification where it has a G3 conservation rank.

An occurrence Granitic Flatrock natural community was documented in PETE. This community is classified as Packera tomentosa - Croton willdenowii - Schizachyrium scoparium - (Selaginella rupestris) Herbaceous Vegetation (Granite Flatrock Complex, Perennial Zone, CEGL004298) in the U.S. National Vegetation Classification where it has a G3 conservation rank.

V. Reports, Publications and Presentations

Stevens, Sara M. 2002. Inventory and Monitoring Data Management. Presentation to the Chesapeake-Allegheny GIS Coordinator's meeting, Reston, VA.

Johnson, Elizabeth. May 2002. Inventory and Monitoring Program Status in the Northeast. Presentation to the Northeast Leadership Council at Cape Cod National Seashore

Patterson, Karen. 2002. Progress Report. Vegetation Mapping in VA Parks

Devine, Hugh. 2002. Progress Report. Vegetation Mapping

VI. Status of Park Vital Signs Monitoring

Planning and implementation of vital signs monitoring has not begun. The Network may receive start-up funding in FY03.

Budget Summary

FY02 Admin Report Network: Mid-Atlantic

Category: 1_Income

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
Regional Contribution from Karish	$5,000.00	Park or Regional $$		
FirePro Veg Mapping	$145,914.00	Fire Program/FirePro		total=$75,002 CBN + $141,730 MID + 4,184 SHEN = $220,916
Inventory Funds	$75,000.00	I&M - Biol. Inventory $$		
Inventory Funds	$39,700.00	I&M - Biol. Inventory $$		Separate money for Appalachian Trail Funded through Mid-Atlantic
APCO Fee demo money for Veg. Mapping	$19,890.00	Park or Regional $$		Fee demo (N81)
Regional Coordinator Salary	$21,250.00	I&M - VS Monitoring $$		
Veg. Mapping Funds	$20,000.00	Veg. Mapping Program		
Regional Office Contribution from Foley	$3,292.00	Park or Regional $$		
Subtotal	*$330,046.00*			

Category: 2_Personnel

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
Applachian Trail/Reese/GIS Data Mining AT	$22,170.00	I&M - Biol. Inventory $$		NPS person co-funded
SHEN Fish Crew/Atkinson/Fish Inv. APCO BOWA PETE	$5,000.00	I&M - Biol. Inventory $$	NPS	
Regional Coordinator Salary	$21,250.00	I&M - VS Monitoring $$	NPS	
Subtotal	*$48,420.00*			

Category: 3_Coop. Agreements

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
PennState/Yahner; Peer Review MID	$5,000.00	Park or Regional $$	Univ_Non-CESU	
Frost.St./Barry; Mammal Inv. FRSP & RICH	$60,834.00	I&M - Biol. Inventory $$	University-CESU	
NatureServe/Sneddon; Veg Map SHEN	$4,184.00	Fire Program/FirePro	Other non-Federal	
NCState/Devine; Legacy data syn. VAFO	$10,574.00	I&M - Biol. Inventory $$	Univ_Non-CESU	
NCState/Devine; Veg Map; MID VA parks	$19,890.00	Park or Regional $$	Univ_Non-CESU	Fee demo APCO
NCState/Devine; Veg Map; MID VA parks	$100,000.00	Fire Program/FirePro	Univ_Non-CESU	Total Project =$152,110, CBN Cost=$52110
PANDI/Davis; Veg. Map HOFU	$19,000.00	Veg. Mapping Program	Other non-Federal	

PennState/Sharp/Fish HOFU	$3,000.00	I&M - Biol. Inventory $$	Univ_Non-CESU	
Frost.St./Barry; Mammal Inv. RICH	$0.00	I&M - Biol. Inventory $$	Univ_Non-CESU	FY02 MID owes NET $7820
Univ. Richmond/Mitchell/Herp. Recon.	$522.00	I&M - Biol. Inventory $$	Univ_Non-CESU	
URI/Nicholson; Data Mining AT	$10,000.00	I&M - Biol. Inventory $$	Univ_Non-CESU	
Frost.St./Barry; Mammal Inv. FRSP & RICH	$3,292.00	Park or Regional $$	University-CESU	Contribution from Region
Univ. Richmond/Mitchell/Herps VA Parks	$0.00	I&M - Biol. Inventory $$	Univ_Non-CESU	FY02 MID owes CBN $110,209
VCW Univ./Pagels; Mam. Inv.; BOWA APCO PETE	$0.00	I&M - VS Monitoring $$	Univ_Non-CESU	FY02 MID owes CBN $66,298
Wm.&Mary/Bradshaw; Bird Inv.; RICH PETE BOWA FRSP	$0.00	I&M - Biol. Inventory $$	Univ_Non-CESU	FY02 MID owes CBN $65,955
Subtotal	*$236,296.00*			

Category: 4_Contracts

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
Kucera/Easterbrook; AirPhotos; 5 VA parks	$35,958.00	Fire Program/FirePro	Other non-Federal	
Kucera/Easterbrook; AirPhotos; HOFU	$1,000.00	Veg. Mapping Program	Other non-Federal	
Kucera/Easterbrook; AirPhotos; HOFU	$2,250.00	Fire Program/FirePro	Other non-Federal	
Subtotal	*$39,208.00*			

Category: 5_Operations/Equipm

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
Kucera/Easterbrook; AirPhotos; Photo Targets	$3,522.00	Fire Program/FirePro	Other non-Federal	
SHEN Fish Crew/Atkinson/Fish Inv. APCO BOWA PETE	$600.00	I&M - Biol. Inventory $$	NPS	
Subtotal	*$4,122.00*			

Category: 6_Travel

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
SHEN Fish Crew/Atkinson/Fish Inv. APCO BOWA PETE	$2,000.00	I&M - Biol. Inventory $$	NPS	
Subtotal	*$2,000.00*			

Budget Analysis

Analysis of Expenses by Expense Type

Funding Source	Total $$	NPS	USGS	Other Federal	Univ.-CESU	Univ_Non-CESU	Other non-Federal
Fire Program/FirePro	$145,914					$100,000	$45,914
I&M - Biol. Inventory	$114,700	$29,770			$60,834	$24,096	
I&M - VS Monitoring $$	$21,250	$21,250				$0	
Park or Regional $$	$28,182				$3,292	$24,890	
Veg. Mapping Program	$20,000						$20,000
Totals	$330,046	$51,020			$64,126	$148,986	$65,914

Analysis of Expenses by Category

Funding Source	Total $$	Personnel:	Coop Agree.	Contracts	Operations/Equip.	Travel	Other
Fire Program/FirePro	$145,914		$104,184	$38,208	$3,522		
I&M - Biol. Inventory	$114,700	$27,170	$84,930		$600	$2,000	
I&M - VS Monitoring $$	$21,250	$21,250	$0				
Park or Regional $$	$28,182		$28,182				
Veg. Mapping Program	$20,000		$19,000	$1,000			
Totals	$330,046	$48,420	$236,296	$39,208	$4,122	$2,000	

Expense Totals By Category

Category	SubTotal	Percent
2_Personnel	$48,420	14.67%
3_Coop. Agreements	$236,296	71.59%
4_Contracts	$39,208	11.88%
5_Operations/Equipment	$4,122	1.25%
6_Travel	$2,000	0.61%
	$330,046	

Budget Summary

FY03 Work Plan Network: Mid-Atlantic

Category: 1_Income

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
Inventory Funds	$80,100.00	I&M - Biol. Inventory $$		Separate money for Appalachian Trail Funded through Mid-Atlantic
Veg. Mapping Funds	$50,000.00	Veg. Mapping Program		requested
Regional Coordinator Salary	$21,250.00	I&M - VS Monitoring $$		
Inventory Funds	$188,000.00	I&M - Biol. Inventory $$		
Subtotal	$339,350.00			

Category: 2_Personnel

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
Regional Coordinator Salary	$3,534.00	I&M - Biol. Inventory $$		NPS additional charge for Reg. Coord.
Regional Coordinator Salary	$21,250.00	I&M - VS Monitoring $$	NPS	
Subtotal	$24,784.00			

Category: 3_Coop. Agreements

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
Vertebrate Inventories VA North AT	$80,100.00	I&M - Biol. Inventory $$	Other non-Federal	
NatureServe Crosswalk Veg. Data	$15,534.00	Veg. Mapping Program	Other non-Federal	
Pandi/Veg. Map	$34,466.00	Veg. Mapping Program	Other non-Federal	
Subtotal	$130,100.00			

Category: 7_Other

Description	*$ Amount*	*$$ Source*	*Expense Type*	*Comments*
FY02 CBN PAID VCW Univ./Pagels; Mam. Inv.; BOWA	$0.00	I&M - Biol. Inventory $$		NPS FY03 MID owes CBN =$65816; $66298 borrowed FY02 - $482 repaid FY03
FY02 MID owes NET $7820	$7,820.00	I&M - Biol. Inventory $$		NPS FY02 NET PAID Frost.St./Barry; Mammal Inv. RICH
FY02 MID owes CBN $65,955	$65,955.00	I&M - Biol. Inventory $$		NPS FY02 CBN PAID Wm.&Mary/Bradshaw; Bird Inv.; RICH PETE BOWA FRSP APCO

FY02 MID owes CBN $66,298 Pd. $482 in FY03 Univ./Pagels; Mam. Inv.; BOWA	$482.00	I&M - Biol. Inventory $$	NPS	FY02 CBN PAID VCW	
FY02 MID owes CBN $110,209 Richmond/Mitchell/Herps VA Parks	$110,209.00	I&M - Biol. Inventory $$	NPS	FY02 CBN PAID Univ.	
Subtotal	$184,466.00				

Budget Analysis

Analysis of Expenses by Expense Type

Funding Source	Total $$	NPS	USGS	Other Federal	Univ.-CESU	Univ_Non-CESU	Other non-Federal
I&M - Biol. Inventory	$268,100	$188,000					$80,100
I&M - VS Monitoring $$	$21,250	$21,250					
Veg. Mapping Program	$50,000						$50,000
Totals	$339,350	$209,250					$130,100

Analysis of Expenses by Category

Funding Source	Total $$	Personnel:	Coop Agree.	Contracts	Operations/Equip.	Travel	Other
I&M - Biol. Inventory	$268,100	$3,534	$80,100				$184,466
I&M - VS Monitoring $$	$21,250	$21,250					
Veg. Mapping Program	$50,000	$50,000					
Totals	$339,350	$24,784	$130,100				$184,466

Expense Totals By Category

Category	SubTotal	Percent
2_Personnel	$24,784	7.30%
3_Coop. Agreements	$130,100	38.34%
7_Other	$184,466	54.36%
	$339,350	